

NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS No. 2, 4, AND AT END BT. 2,  
SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

FOR SINGLE FACED PRECAST CONCRETE BARRIER AT WALL 2, PARKING LOT AREA. SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A FENCE OR HANDRAIL IS REQUIRED ALONG BACK OF RETAINING WALLS No. 2 AND 4. SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

USE AN MSE WALL SYSTEM WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS No. 2, 4, AND END BENT 2.

A DRAIN IS REQUIRED FOR RETAINING WALLS.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL No. 2, 4, AND END BT. 2, SURVEY WALL LOCATIONS AND SUBMIT A REVISED WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPES ARE ACCEPTED.

DESIGN RETAINING WALL NO. 2, 4 AND END BENT 2 FOR THE FOLLOWING:  
1) H = DESIGN HEIGHT + EMBEDMENT  
2) DESIGN LIFE = 100 YEARS  
3) MAXIMUM FACTORED VERTICAL STRESS ON FOUNDATION MATERIAL = 8400 LB/SF

4) AGGREGATE PARAMETERS FOR WALLS 2, 4, and END BT. 2:

| AGGREGATE TYPE*   | UNIT WEIGHT<br>( $\gamma$ )<br>LB/CF | FRICTION ANGLE<br>( $\phi$ )<br>DEGREES | COHESION<br>(c)<br>LB/SF |
|---|--------------------------------------|---|--------------------------|
| COARSE  | 110                                  | 38                                      | 0                        |
| FINE  | 125                                  | 34                                      | 0                        |
| *SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS. |                                      |   |                          |

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

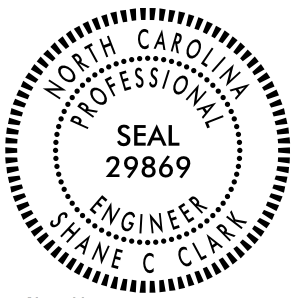
| MATERIAL TYPE | UNIT WEIGHT<br>( $\gamma$ )<br>LB/CF | FRICTION ANGLE<br>( $\phi$ )<br>DEGREES | COHESION<br>(c)<br>LB/SF |
|---------------|--------------------------------------|---|--------------------------|
| BACKFILL      | 120                                  | 32                                      | 0                        |
| FOUNDATION    | 120                                  | 32                                      | 0                        |

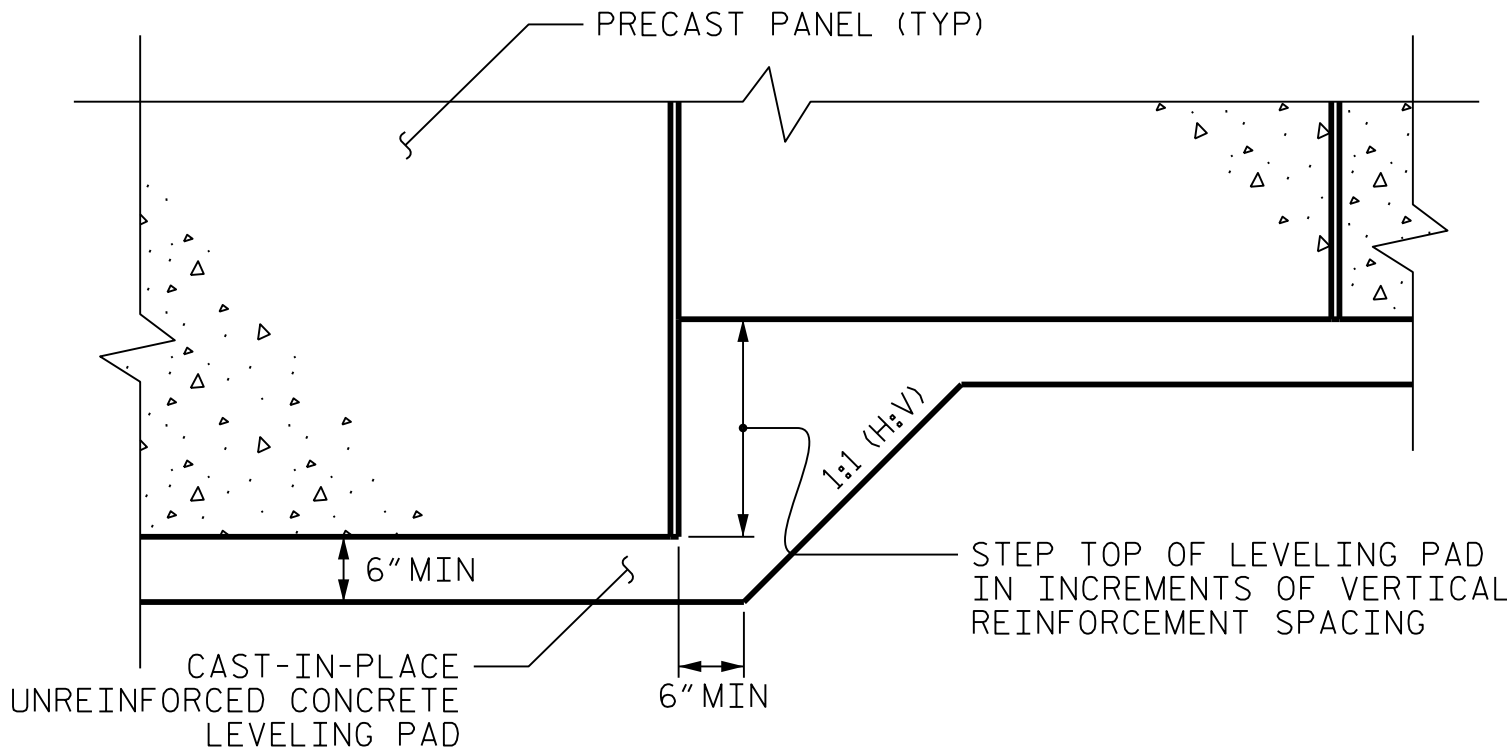
DESIGN RETAINING WALLS No. 2, 4, AND AT END BT. 2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALLS No. 2, 4, AND AT END BT. 2.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALLS No. 2, 4, AND AT END BT. 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

TEMPORARY SHORING FOR WALL CONSTRUCTION IS REQUIRED TO CONSTRUCT RETAINING WALLS No. 2, 4, AND AT END BT. 2. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

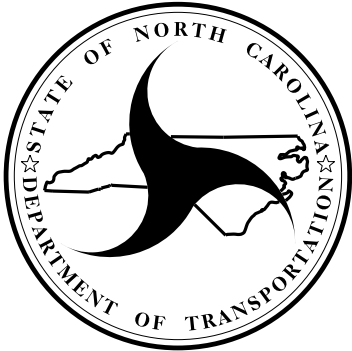
|   |      |           |      |
|---|------|-----------|------|
| GEOTECHNICAL<br>ENGINEER  |      | ENGINEER  |      |
|  |      |           |      |
| DocuSigned by:<br><i>Shane C. Clark</i>   |      | 7/15/2015 |      |
| 1FAE87EBD8AD6EA   |      |           |      |
| SIGNATURE   | DATE | SIGNATURE | DATE |



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: B-5136  
CABARRUS COUNTY  
STATION: \_\_\_\_\_  
SHEET 5 OF 5

|   |    |  |      |  |     |  |  |      |  |              |  |  |  |  |  |  |  |
|---|----|--|------|--|-----|--|--|------|--|--------------|--|--|--|--|--|--|--|
|  |    |  |      |  |     | <b>GEOTECHNICAL ENGINEERING UNIT</b><br><input type="checkbox"/> EASTERN REGIONAL OFFICE<br><input checked="" type="checkbox"/> WESTERN REGIONAL OFFICE<br><input type="checkbox"/> CONTRACT OFFICE<br><b>STATE OF NORTH CAROLINA<br/>DEPARTMENT OF TRANSPORTATION<br/>RALEIGH</b> |  |      |  |              |  | <b>MSE<br/>RETAINING WALL<br/>WALLS #2, #4, AND END BENT 2</b> |  |  |  |  |  |
| <b>REVISIONS</b>  |    |  |      |  |     |  |  |      |  |              |  | SHEET NO.<br>W-11  |  |  |  |  |  |
| NO.   | BY |  | DATE |  | NO. | BY   |  | DATE |  | TOTAL SHEETS |  |  |  |  |  |  |  |
| 1   |    |  |      |  | 3   |  |  |      |  |              |  |  |  |  |  |  |  |
| 2   |    |  |      |  | 4   |  |  |      |  |              |  | 13   |  |  |  |  |  |

|                  |            |
|------------------|------------|
| PREPARED BY: EJS | DATE: 1/15 |
| REVIEWED BY: SCC | DATE: 1/15 |